ABSTRACT OF THE DISCLOSURE

A process for calculating a meshed description of a realization of an oil-bearing reservoir takes as its starting point a reference realization of the reservoir with a plurality of stratigraphic surfaces, a meshed reference description for the reference realization comprising a plurality of planes some of which describe the stratigraphic surfaces, each plane comprising a plurality of points, at least two stratigraphic surfaces of the realization corresponding to two stratigraphic surfaces of the reference realization. A plane of the meshed description representing one of the two stratigraphic surfaces of the realization is obtained by applying displacements to the points of the planes of the reference description, making it possible to pass from the reference stratigraphic surface to the stratigraphic surface in the realization. The other planes of the description are obtained thereafter by interpolation. The process makes it possible to preserve homology both of structure and of representation between the various realizations. It avoids the need to recalculate *ex nihilo* a meshed description of the reference.